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CENTRAL INTELLIGENCE AGENCY  
**INFORMATION REPORT**

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SUBJECT

New Soviet Turbo-Drilling Rigs Observed  
in SMV Oilfields

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1. At Zwernsdorf in the SEB Matzen area of the Soviet Oil Administration (SMV), four new Soviet turbo-drilling rigs have been operating since December 1953 or January 1954. First parts of this drilling rig arrived some time in September 1953, and all its constituent parts have been kept under special guard and security protection.
2. The rigs are supposed to be a Soviet invention and a Soviet crew has been assigned to teach Austrian foremen at SMV how to operate the turbo rig. The Soviet crew is using housing especially constructed for them; also Austrian workers have complained that the Soviet crew is receiving preferential treatment because it is allowed to keep three sets of working tools at each rig and because the Soviets demand exact replacement parts when there are breakdowns, instead of making improvised repairs as is the custom of the Austrian workers.
3. The four turbo rigs have been erected at a location near Zwernsdorf where, two years ago, a drill rig was blown up by a gas eruption. The SMV had not been able to get this eruption under control and the well had been throwing up each day approximately 500,000 cubic meters of salt water mixed with gas. The rigs were erected around the opening of the eruptive well in the circular area which was covered with mud.
4. The principle underlying the working mechanism of the turbo rig is very simple. Instead of having the turning drill bit fixed to the drilling tubes, which are rotated from above the ground by a turntable, the drill tubes in the turbo rig are kept in a fixed position so that they can not turn. At the end of the drilling tubes, a small powerful water propelled turbine is attached. The rotating shaft of the turbine is allegedly attached directly (without clutch or transmission) to the drilling bit.
5. To propel the turbine, water is pumped from four coupled pumps through the drilling tube to the turbine with a pressure of about 1,000 atmospheres. The pumps operate with a maximum capacity of 300 atmospheres each. Under normal working conditions, if the ground is not too hard and rocky, the pressure of 1,000 atmospheres will

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rotate the turbine at 800 to 1,000 turns per minute. The water which ~~thens~~ the turbine is then used to flush out excess earth. After being filtered, the same water is used again.

- 6.
6. In theory the drilling tubes do not break and there is less possibility that the drilled holes inclines from the vertical. The actual ~~drilling~~ time is supposed to be shorter. If repairs are necessary, the ~~drilling~~ tubes and turbine ~~is~~ assembled faster. ~~The repairs are not difficult.~~
7. The strain on the pumps, however, is so great that they require constant repair. So far, the drilling progress when hitting rocky strata has been slower ~~than~~ with a regular drilling rig.